

REMARKS

Claims 1-5 and 7-21 are currently pending in the present application. Claims 1 and 8 are amended. Claims 1, 8, and 13 are independent. In view of the above amendments and following remarks, the Examiner is requested to reconsider the outstanding rejections.

Specification / New Matter

The Examiner objected to the Amendment filed on June 7, 2005 (hereafter "Previous Amendment") under 35 U.S.C. § 132(a) because the amendment allegedly introduces new matter into claims 13 and 14.

Applicants point out the following passage in MPEP § 608.04:

"When new matter is introduced into the specification, the amendment should be objected to under 35 U.S.C. 132 (35 U.S.C. 251 if a reissue application) and a requirement made to cancel the new matter. The subject matter which is considered to be new matter must be clearly identified by the examiner. If the new matter has been entered into the claims or affects the scope of the claims, the claims affected should be rejected under 35 U.S.C. 112, first paragraph, because the new matter is not described in the application as originally filed." (emphasis added)

Accordingly, Applicants submit that this objection to the amendment is improper because it does not relate to new matter introduced in the **specification**, as discussed in the MPEP. In fact, the specification was not even amended in the Previous Amendment. Thus, Applicants respectfully submit that the Examiner should withdraw this objection.

Drawings

The Examiner objected to the drawings because they allegedly do not include the reference number 5, which is mentioned in the specification at page 16, lines 16-20. Applicants respectfully disagree because Fig. 1 clearly includes the reference numeral 5 in connection with

“stereo demodulation means.” Fig. 2A is mentioned in the cited passage of the specification because Fig. 2A illustrates the *output signal* of the stereo demodulation means. Fig. 2A does not actually illustrate the stereo demodulation means. Accordingly, it would be inappropriate to add the reference numeral 5 in Fig. 2A. Thus, Applicants respectfully request the Examiner to reconsider and withdraw this objection to the drawings.

Claim Objection

The Examiner objected to claim 1, pointing out alleged informalities in the claim. In response to the objection, Applicants have implemented the Examiner’s suggestion of changing “the audio signal” to --the demodulated audio signal--.

However, Applicants can find no good reason for implementing the Examiner’s other suggestion of changing “the generation period of the noise” to --the generation time point of the noise--. Applicants respectfully submit that this claim element clearly refers to the “period including a generation time point of the noise” in lines 4-5 of claim 1, as listed above. Thus, Applicants respectfully submit that this feature does not require correction or clarification.

For the reasons set forth above, the Examiner is requested to reconsider this objection.

Rejections Under 35 U.S.C. § 112

Claims 1 and 13-21 stand rejected under 35 U.S.C. § 112, first paragraph, for allegedly failing to comply with the enablement requirements. These rejections are respectfully traversed.

Applicants point out that MPEP § 2163 sets forth guidelines for the examination of patent applications under the “Written Description” requirement of 35 U.S.C. § 112, first paragraph. Specifically, the second paragraph of MPEP § 2163.I.B indicates that the requirement for the specification to support added claim limitations is not an *in haec verba* requirement (i.e., the specification is not required to use the exact language in the claims). Instead, this section of the

MPEP indicates that the specification may support added claim limitations through express, implicit, or inherent disclosure.

Furthermore, MPEP § 2163.II.A lists the methodology for the Examiner to follow in order to determine the adequacy of the Written Description. This methodology includes the following steps:

1. For each claim, determine what the claim as a whole covers;
2. Review the **entire application** to understand how Applicants provide support for the claimed invention including each element and/or step; and
3. Determine whether there is sufficient Written Description to inform a skilled artisan that Applicants were in possession of the claimed invention as a whole at the time the application was filed.

Applicants respectfully submit that the Examiner did not follow this methodology in rejecting the claims. Instead of reviewing the entire application to find enablement for each claim, it seems that the Examiner only analyzed isolated passages in the specification, and concluded that certain claim elements are not enabled because they do not match the exact language in those isolated passages. Applicants respectfully submit that such analysis is not permitted according to the aforementioned methodology required by the MPEP.

Applicants will address the specific grounds of the Examiner's rejections below.

Claim 1

The Examiner asserts that the specification does not teach the claim limitation of "a second corrector outputting the correction for correcting the noise according to ... one or more of the demodulated audio signal which occur after the generation period," as recited in claim 1.

Initially, Applicants point out that claim 1 has been amended above to correct a typographical error. As amended, the aforementioned limitation now reads “one or more values of the demodulated audio signal which occur after the generation period.”

Further, Applicants direct the Examiner’s attention to page 16, lines 11-17, which state:

“[I]n the second correction means, the correction signal for correcting the noise according to a **plurality of signal values** which exist just **after** a predetermined period including the **generation time point of the noise** is outputted.” (emphasis added)

Furthermore, page 15, line 24 – page 16, line 2 clearly teaches that such correction is performed by averaging multiple signal values occurring after the correction period (i.e., the period including the noise). Thus, Applicants respectfully submit that the aforementioned claim limitation in claim 1 is enabled by the specification.

Claims 13-19

The Examiner asserts that the specification does not teach the limitation “if the high band component level satisfies a first criteria, configuring the correction signal to extend from a signal value in the demodulated signal that occurs prior to the detected period, and if the high band component level satisfies a second criteria, configuring the correction signal based on a plurality of signal values in the demodulated signal that occur prior to the detected period” (as emphasized by the Examiner).

Applicants direct the Examiner’s attention to page 20, lines 1-19 of the specification, which states:

“[T]he output signal VH [from] the high band level detection means 17 and the output signal from the level detection means 16 are inputted.

Herein, when the VH/VA is smaller than a predetermined value (that is, the rate of the signal of the high band component is

small), the selection means 200 connect the output side of the Rch to the intermediate and low band correction means 12 by the switch 21[.]

When the VH/VA is larger than a predetermined value, (that is, the rate of the signal of the high band component is large), the selection means 200 connect the output side of the Rch to the high band correction means 13[.]”

(emphasis added)

In above-quoted passage, the statement “when the VH/VA is smaller than a predetermined value” is an example of a first criteria being satisfied, i.e., the rate of the signal of the high band component being small. The statement “when the VH/VA is larger than a predetermined value” is an example of a second criteria being satisfied, i.e., the rate of the signal of the high band component being large.

Those of ordinary skill in the art would immediately realize that each of the above statements in the specification represent criteria being satisfied by the high band component. Applicants wish to remind the Examiner that there is **no requirement** that the specification use the exact language in the claims, as discussed in MPEP § 2163. Thus, it is not necessary for the specification to actually label these statements as “first and second criteria.”

Accordingly, Applicants submit that the aforementioned claim limitations in claims 13-19 are enabled by the specification.

Claim 21

The Examiner asserts that the specification does not teach that “the sensitivity of noise detection decreases as the high band component level increases.”

In response, Applicants point out the following description in the specification at page 23, lines 18-21:

“...and numeral 111 is a noise detection means for adjusting the sensitivity of the noise detection corresponding to the output from the high band level detection means 17 and 19.”

Also, page 24, lines 16-19 of the specification states the following:

“Accordingly, when the high frequency component is large, the detection sensitivity of the pulsive noise is lowered, so that the small noise is not detected, and the correction by the correction means 12-15 is not conducted.” (emphasis added)

When taken in conjunction with Fig. 4, it is clear that these portions of the specification clearly enable the limitation that the sensitivity of noise detection decreases (is lowered) as the high band component level increases (becomes large).

Rejections Under 35 U.S.C. § 102

Hirohashi Rejection

Claims 8 and 10-11 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,574,390 to Hirohashi et al. (hereafter “Hirohashi”). This rejection is respectfully traversed.

In the Previous Amendment, Applicants pointed out that Hirohashi teaches first and second embodiments of a noise reduction circuit. Applicants argued that neither embodiment teaches every claim element of claim 8, as required under § 102. See Previous Amendment at page 18.

As to Hirohashi’s second embodiment, Applicants argued that this embodiment sends the demodulated FM signal, which includes the information regarding audio signals for both the left and right audio channels, to the noise reduction circuits 60L and 60R. Thus, Applicants argued that Hirohashi’s second embodiment “fails to teach correcting each channel’s audio signal after the audio signal has been demodulated from the information corresponding to the plurality

of audio signals, as required by independent claim 8" (as emphasized by Applicants). See Previous Amendment at page 17.

However, in response to this argument, the Examiner asserts that "the argued limitation was not recited in claim 8" (Office Action at page 18). Presumably, the Examiner is broadly interpreting the claimed audio signals as not necessarily having a one-to-one correspondence with the plurality of channels. Without conceding the validity of the Examiner's interpretation, Applicants have amended claim 8 to more clearly indicate that each audio signal corresponds to a respective one of the plurality of channels. This amended claim is listed below:

8. A noise removal apparatus comprising

a noise detector detecting the noise included in a demodulation signal having the information corresponding to audio signals of a plurality of channels from the demodulation signals, **each of the audio signals corresponding to a respective one of the plurality of channels;**

an audio signal demodulator **demodulating and outputting the audio signals** corresponding to the each of the plurality of channels from the information corresponding to the audio signals included in the demodulation signals; and

a corrector independently **correcting the detected noise in each audio signal outputted** from said audio signal demodulator according to the output of the noise detectors.

As shown in the emphasized portions above, claim 8 now clearly recites that each audio signal corresponds to a particular channel, and that noise is corrected in each audio signal after the audio signal has been demodulated. Since the Examiner relies on Hirohashi's second embodiment (see Office Action at page 18), and the second embodiment fails to teach the aforementioned features of claim 8, Applicants respectfully submit that this rejection should be withdrawn.

Ugari Rejection

Claims 8, 10, and 11 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,416,024 to Ugari et al. (hereafter “Ugari”). This rejection is respectfully traversed.

As discussed above, claim 8 recites detecting noise and correcting the detected noise in the demodulated audio signal corresponding to each channel. Applicants submit that Ugari fails to disclose this feature.

Ugari teaches that the pulsive noise removing circuit 9 performs the functions of both noise detection (noise detector 96) and noise correction (pilot signal hold 99 and output 98). See Fig. 5; col. 6, line 57 – col. 7, line 22. Furthermore, Ugari specifically teaches that the stereo demodulator 11 receives the output of the pulsive noise removing circuit 9 in order to demodulate the audio signal (L, R) of each of the left and right channels. See Fig. 3 and Fig. 6; col. 7, lines 23-54.

Accordingly, Ugari clearly teaches that the audio signal for each of the left and right channels is demodulated **after** noise correction occurs. Thus, Ugari fails to disclose the correcting of detected noise in the audio signal of each channel after such audio signals are demodulated, as required by independent claim 8.

In the rejection, the Examiner relies upon elements 13, 15, and 17 of Fig. 3 to teach “a corrector” (Office Action at page 8). However, col. 7, line 67 – col. 8, line 4 of Ugari discloses:

“Referring to Fig. 3, the left signal and the right signal are **balance adjusted** by means of a **balancing** variable resistor 13, so that the left signal is applied through a variable resistor 15 to a low frequency amplifier 19 and the right signal is applied through a variable resistor 17 to a low frequency amplifier 21.” (emphasis added)

Thus, it is clear that elements 13, 15, and 17 in Ugari are used for balance adjustment -- not for noise removal.

Therefore, Applicants submit that Ugari fails to disclose each and every claimed feature in independent claim 8. Accordingly, this rejection should be withdrawn.

Conclusion

It is respectfully submitted that independent claim 8 is allowable over Hirohashi and Ugari, at least for the reasons set forth above. Furthermore, claims 10 and 11 are allowable at least by virtue of their dependency on claim 8. Accordingly, the Examiner is respectfully requested to reconsider and withdraw this rejection.

Rejections Under 35 U.S.C. § 103

Hirohashi/Tanaka Rejection

Claims 1, 7, and 12-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirohashi in view of U.S. Patent No. 5,715,351 to Tanaka. This rejection is respectfully traversed.

It is clear from the rejection that the Examiner relies on Hirohashi as the primary reference. With respect to independent claim 1, the Examiner relies on element 12 of Hirohashi to teach the claimed first corrector. The Examiner further relies on element 13 of Hirohashi to teach the claimed second corrector. See Office Action at page 9.

The Examiner admits that Hirohashi fails to teach a high “does not clearly teach...a selector selecting either one of said first or said second correctors according to the output of the high band level detector” (Office Action at page 9). However, the Examiner relies on Tanaka to remedy this deficiency, asserting that Tanaka’s elements 30 and 43 teach selectors. The Examiner asserts that it would have been obvious to one of ordinary skill in the art to implement Tanaka’s alleged selector.

Initially, Applicants point out the following requirement of a *prima facie* case of obviousness according to MPEP 2143.01:

“If [a] proposed modification or combination of the prior art would **change the principle of operation** of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).” (emphasis added)

Furthermore, the same section of the MPEP states the following:

“If [a] proposed modification would render the prior art invention being **modified unsatisfactory for its intended purpose**, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).” (emphasis added)

Applicants respectfully submit that the Examiner’s proposed modification of Hirohashi in view of Tanaka is improper because it would both change the principle of operation in Hirohashi and render Hirohashi unsatisfactory for its intended purpose.

Specifically, Hirohashi teaches a pair of noise removal circuits 6L and 6R (Fig. 1). Each noise removal circuit 6L, 6R in Hirohashi includes a noise detector 8 and a sample-and-hold circuit 12. Hirohashi teaches that the sample-and-hold 12 includes an electronic switch 13 and a capacitor 14.

In Hirohashi, the function of the sample-and-hold circuit is to close the switch 13 when no noise is detected. This causes the capacitor 14 to develop an output waveform 53 that tracks the input signal. See Hirohashi at col. 5, line 67 – col. 6, line 2. However, when noise is detected by noise detector 8, the sample-and-hold circuit 12 enters a hold mode in which the switch 13 is open to cut off the input signal to hold the voltage level of the capacitor 14 at the point immediately prior to the occurrence of the noise. See Hirohashi at col. 4, line 67 – col. 5, line 3; col. 6, lines 2-7. However, during this hold mode, Hirohashi teaches that the voltage at the

capacitor 14 must be compensated for by a slop ratio, which is derived by the sample-and-hold circuit 32. See Hirohashi at col. 6, lines 7-11 and lines 37-48.

Thus, it is clear from Hirohashi that the sample-and-hold circuits 12 and 32 work together in order to produce an output waveform 53 with a suitable slope ratio during the period when noise is generated. Thus, Hirohashi directly **teaches away** from selecting between circuits 12 and 32. Instead, circuits 12 and 32 **must work together** to correct the noise.

Thus, Applicants respectfully submit that modifying Hirohashi to select between circuits 12 and 32 would certainly change the principle of operation of Hirohashi. Also, such a modification would render Hirohashi's sample-and-hold circuit 12 unsuitable for its intended purposes of switching between the normal tracking mode and the hold mode based on the presence of noise. Accordingly, Applicants respectfully submit that the Examiner's proposed combination of Hirohashi and Tanaka is impermissible.

Furthermore, Applicants respectfully submit that Hirohashi and Tanaka are not analogous prior art. While Hirohashi discloses circuits for processing **audio** signals, Tanaka is directed to circuits for processing **visual signals**, i.e., the luminance and chrominance components of a video signal. See Tanaka at Abstract.

At least for the reasons set forth above, Applicants respectfully submit that the Examiner's proposed combination of Hirohashi and Tanaka is improper, and that a *prima facie* case of obviousness has not been established with respect to claim 1. Accordingly, Applicants respectfully submit that claim 1 is allowable over Hirohashi and Tanaka. Furthermore, it is respectfully submitted that claims 7 and 12 are allowable at least by virtue of their dependency on claim 1.

With respect to independent claim 13, the Examiner relies on the signals output from elements 12 and 33 in Hirohashi to teach the claimed first and second correction signals, respectively. The Examiner admits that Hirohashi fails to disclose selecting between correction signals, and relies on Tanaka to remedy this deficiency. See Office Action at page 11.

Applicants respectfully submit that, in Hirohashi, the signal output from the subtractor 33 is used by the sample-and-hold circuit 32 to compensate the waveform 53 generated by the sample-and-hold circuit 12 while operating in the hold mode. See col. 5, lines 20-37. Accordingly, the signal from subtractor 33 helps generate the signal output by circuit 12 when noise is detected.

Therefore, Applicants submit that the Examiner's proposed modification of Hirohashi to select between these signals would impermissibly change the principle of operation of Hirohashi, and thus render Hirohashi unsatisfactory for its intended purpose. In addition, Applicants submit that Hirohashi and Tanaka are not analogous art for reasons discussed above.

Thus, Applicants respectfully submit that a *prima facie* case of obviousness has not been established with respect to independent claim 13 and dependent claims 14 and 15 at least for the reasons set forth above.

At least for the reasons given above, reconsideration and withdrawal of this rejection is respectfully requested.

Hirohashi/Tanaka/Brommer Rejection

Claims 2, 3, and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirohashi and Tanaka, and further in view of U.S. Patent No. 6,233, 443 to Brommer (hereafter "Brommer"). Applicants respectfully submit that the combination of Hirohashi and Tanaka is impermissible under § 103 at least for the reasons set forth above in connection with independent claims 1 and 13. It is further submitted that Brommer fails to remedy this deficiency of Hirohashi and Tanaka. Accordingly, Applicants respectfully submit that the Examiner has failed to provide a *prima facie* case of obviousness with respect to claims 2, 3, and 18. Thus, reconsideration and withdrawal of this rejection is respectfully requested.

Hirohashi/Tanaka/Nakamura Rejection

Claims 4, 5, 19, and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirohashi and Tanaka, and further in view of EP Application No. 0477460 to Nakamura et al. (hereafter “Nakamura”). It is respectfully submitted that the Hirohashi/Tanaka combination is improper under § 103 at least for the reasons set forth above in connection with claims 1 and 13. It is respectfully submitted that Nakamura fails to remedy this deficiency. Thus, Applicants submit that a *prima facie* case of obviousness has not been established with respect to claims 4, 5, 19, and 20. Thus, reconsideration and withdrawal of this rejection is requested.

Hirohashi/Brommer Rejection

Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirohashi in view of Brommer. Applicants respectfully submit that Brommer fails to remedy the deficiencies of Hirohashi as set forth above in connection with independent claim 8. Specifically, the Examiner only relies on Brommer to teach “noise detection, such that for each predetermined period that alternates among a plurality of channels, a portion of the period respectively overlaps with each other” (see Office Action at page 15). Thus, Applicants respectfully submit that claim 9 is allowable at least by virtue of its dependency on allowable claim 8. Reconsideration and withdrawal of this rejection is respectfully requested.

Ugari/Brommer Rejection

Claim 9 further stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ugari in view of Brommer. It is respectfully submitted that Brommer fails to remedy the deficiencies of Ugari set forth above in connection with independent claim 8. Specifically, the Examiner relies on Brommer only to teach “noise detection, such that for each predetermined period that alternates among a plurality of channels, a portion of the period respectively overlaps with each other” (see Office Action at page 15). Accordingly, claim 9 is allowable at least by virtue of its dependency on claim 8. As such, Applicants respectfully request reconsideration and withdrawal of this rejection.

Hirohashi/Tanaka/Vos Rejection

Claims 16 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirohashi and Tanaka, and further in view of U.S. Patent No. 5,363,413 to Vos (hereafter “Vos”). At least for the reasons set forth above in connection with independent claim 13, Applicants respectfully submit that the proposed Hirohashi/Tanaka combination is improper under § 103. Applicants further submit that Vos fails to remedy this deficiency. Thus, Applicants submit that a *prima facie* case of obviousness has not been established with respect to claims 16 and 17. Thus, reconsideration and withdrawal of this rejection is requested.

Hirohashi/Tanaka/Matsumoto Rejection

Claim 21 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirohashi and Tanaka, and further in view of U.S. Patent No. 5,630,217 to Matsumoto (hereafter “Matsumoto”). At least for the reasons given above in connection with independent claim 13, it is respectfully submitted that the Examiner’s proposed Hirohashi/Tanaka combination is improper under § 103. Applicants also submit that Matsumoto fails to remedy this deficiency. Accordingly, Applicants submit that a *prima facie* case of obviousness has not been established for claim 21. Therefore, the Examiner is requested to reconsider and withdraw this rejection.

Finality of Office Action is Improper

The Examiner asserts that “Applicant’s amendment necessitated the new ground(s) of rejection presented in this Office action” (Office Action at page 18). Thus, the Examiner made the outstanding Office Action final. Applicants respectfully disagree with the Examiner’s assertion, and submit that the finality of the Office Action is improper.

For instance, the Examiner introduced new grounds of rejection made by the Examiner with respect to independent claim 1, and the claims dependent thereon, which were not necessitated by Applicants’ amendments. In the current Office Action, the Examiner admits that Hirohashi fails to teach the claimed high band level detector and selector, and relies on the newly

cited Tanaka patent to teach these features (see Office Action at pages 9-10). Applicants submit that these features were not added, or materially modified, by the Previous Amendment. See Previous Amendment at Listing of Claims, pages 2-3. Thus, Applicants submit that the new ground of rejection as to claim 1 was necessitated only because the Examiner's realized that the previous ground of rejection of claim 1 (in the Office Action of March 7, 2005) was inadequate.

Accordingly, Applicants submit that the new grounds of rejection to claim 1 and the claims dependent thereon were not necessitated by Applicants' amendment. Therefore, the finality of this Office Action should be withdrawn, and this Amendment should be entered.

Conclusion

Entry of this Amendment After Final is respectfully requested in view of the fact that the finality of the outstanding Office Action was improper. In view of the above amendments and remarks, Applicants believe the pending application is in condition for allowance.

However, should the Examiner believe that any outstanding matters remain in the present application, the Examiner is requested to contact Applicants' representative, Jason Rhodes (Reg. No. 47,305), at the telephone number of the undersigned in order to conduct an interview and expedite prosecution in the present application.

Dated: January 9, 2006

Respectfully submitted,

gpl

By _____
Michael K. Mutter
Registration No.: 29,680
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Rd
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant